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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,816	11/24/2003	Thomas W. Stone	10010937-1	5361

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EXAMINER	
CHIEM, DINH D	
ART UNIT	**PAPER NUMBER**
2883	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

4

Office Action Summary	Application No.	Applicant(s)	
	10/720,816	STONE ET AL.	
	Examiner	Art Unit	
	Erin D. Chiem	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *11* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed on March 30, 2006. Currently, claims 1-11 are pending, claim 11 is withdrawn from consideration.

Claim Objections

In view of the remarks, the objection to claim 4 is withdrawn.

Specification

The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f).

The attempt to incorporate subject of application 10/668975 and US Patent 5,771,320 matter into this application by reference to overcome the 35 U.S.C. 112, first paragraph rejection and the amend claimed subject matter is ineffective because:

1) Incorporating **pending application** 10/668975 (10/668,975) to overcome the claim enablement rejection is not persuasive. The claim enablement rejection is based upon the knowledge of one having ordinary skill in the art at the time of the invention would comprehend

the claimed subject matter that without undo experimentation, one would understand the enablement of the device. However, applicant is referencing a different **pending application** 10/668,975 by the same assignee to enable non-disclosed subject matter of the present application (10/720816). Without the knowledge of the pending application 10/668,975, one having ordinary skill in the art would not recognize how claim 1 is enabled. Therefore, claim 1 of the present application 10/720,816 belongs in the pending application 10/668,975, which enables claim 1, and not the current application. Therefore, the Specification is objected to for lack of completeness and the 35 U.S.C. 112 First paragraph rejection stands. See MPEP § 608.01(p) [R-3].

2) Incorporating US Patent 5,771,320 to illustrate the disclosure of newly amended subject matter is ineffective since Patent '320 is a statutory 102(b) reference. Furthermore, claim amendments are bound by the scope of the Specification. Therefore, the amended subject matter shall be subjected to a new matter rejection, as shall be rejected below.

The incorporation by reference will not be effective until correction is made to comply with 37 CFR 1.57(b), (c), or (d). If the incorporated material is relied upon to meet any outstanding objection, rejection, or other requirement imposed by the Office, the correction must be made within any time period set by the Office for responding to the objection, rejection, or other requirement for the incorporation to be effective. Compliance will not be held in abeyance with respect to responding to the objection, rejection, or other requirement for the incorporation to be effective. In no case may the correction be made later than the close of prosecution as defined in 37 CFR 1.114(b), or abandonment of the application, whichever occurs earlier.

Any correction inserting material by amendment that was previously incorporated by reference must be accompanied by a statement that the material being inserted is the material incorporated by reference and the amendment contains no new matter. 37 CFR 1.57(f).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim1 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. The existence of a beam splitter or a polarization rotator is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). In claim 1, in the description pertaining to the polarization separating sub-system, the claim recites –...*the input optical beam into a first optical beam of a first polarization and a second optical beam of a second polarization, said second polarization being distinct from said first polarization,[how?] and emitting a first emitted optical beam of the first polarization and a second emitted optical beam of the first polarization, said emitted first and emitted second optical beams constituting an input channel of the first polarization;*--. The most logical reasoning is that a beam splitter could have been employed to the first optical beam of a first polarization such that there are two optical beams of the same polarization, or there must be a polarization rotator such that the two beams have the same polarization. The examiner arrives at the conclusion because the counterpart

beam (second optical beam of a second polarization) is not mentioned any further in dependent claims.

Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As explained above, the incorporation of pending application 10/668,975 is ineffective in disclosing the enablement of newly amended claimed subject matter. Since reference of enablement must be made to the pending application 10/668,975, then the current claim subject matter belongs in pending application 10/668,975.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 5-10 rejected under 35 U.S.C. 102(e) as being anticipated by Stone (US 6,585,382 B1)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Stone teaches a polarization separating system (Fig. 1; (10) and Fig. 14; (202)), at least one switchable diffraction grating (12) (col. 6, lines 26-39); and, a polarization recombining sub-system (Fig. 14; (204)); the means for varying a diffraction efficiency of the switchable diffraction grating is provided by control signal (C1). The separating sub-system separates the input beam (194) into two beams (210) and (211) polarized orthogonally (col. 10, lines 24-42). A polarization rotator (198) is provided to rotate one of the beam such that both beams have the same polarization and are incident on to grating (192), (NOTE: Stone teaches switchable mirrors and switchable gratings interchangeably) as an input channel of the first polarization; switchable diffraction gratings (12) is one of three (12, 14, 16) gratings in the separating sub-system; the polarization recombining sub-system works similarly as the separating sub-system but in the reversal direction, as would be understood to one having ordinary skill in the art. In Fig. 14, the final output beam (196) constitute a set of output beams.

Regarding claims 2 and 4 the polarization rotator or "pixellated retarder" or "steering gratings" as incorporated from reference (US 5,692,077) are used interchangeably. This element is placed between the diffraction grating (Patent '077 elements 62, 64, 68, and 70 of Fig. 4 and the recombining sub-system (2Δ, 4Δ, 8Δ). The same polarization rotator is used for the separating sub-system and diffraction grating. Regarding the disclosure of "a static grating" '382 patent discloses this limitation in view of applicant's disclosure of "a static grating" on page 11 para. [0036]. Without further detail, applicant defines "static grating can be...a volume

diffraction grating that is non-switchable." Therefore, the volume diffraction grating, as described in col. 6, lines 6-20, inherently discloses a static diffraction grating by maintain a constant electric field, then the liquid crystal structures are not imbibed and therefore, not switching.

Regarding the limitation wherein the at least one switchable diffraction grating comprises one switchable volume diffraction grating (claim 2 and 5). Stone teaches in col. 6, lines 6-12 that recent improvement of high efficiency volume diffraction gratings allows one or more of the switching mirrors to be replaced with the mentioned volume diffraction gratings.

Regarding claim 3, the control element capable of controlling switching is the variably applied voltage.

Regarding claim 5, the switching mechanism is exemplified with mirror arrays, however, in col. 6, lines 21-25, Stone discloses that the shifter and routing systems disclosed within the patent can be replaced with the electrically switched gratings (volume diffraction gratings (col. 6, lines 5-12)). Thus the various stages of the separating and recombining subsystems that utilize mirror array can be replaced with the electrically switched gratings.

Regarding claim 6, the transparent glass may be used to separate the planes of switched gratings to provide a monolithic and stable device (col. 4, lines 50-52).

Regarding claim 7, wherein the two final output beams (196) exiting from the recombining sub-system (204) is visible in Fig. 14.

Regarding claims 8-10, the method steps are implicitly understood to one having ordinary skill in the art from the disclosure of the structural embodiment of the limitations above.

Response to Arguments

Applicant's arguments filed March 30, 2006 have been fully considered but they are not persuasive. The arguments regarding the prior art rejections to claims 1, 2, 4, 5, and 8 are further clarified in the rejection above.

Regarding the argument that the '382 patent is not prior art for a 103 rejection. It is respectfully point out that the rejection is a 102 rejection and since patent '382 is incorporating patent 5,692,077 disclosure, thus the full disclosure of '077 is a part of the same prior art of patent '382.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system; call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin D Chiem
Examiner
Art Unit 2883

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